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INITIAL SUBMISSION: ACUTE INHALATION TOXICITY STUDY WITH DIISOCYANATES, POLYMER ISOCYANATES, AND COATING SYSTEMS IN RATS WITH COVER LETTER DATED 063092			
Chemical Category			
DIISOCYANATES, POLYMER ISOCYANATES, AND COATING SYSTEMS			

8(e)

5968

CAP

(COMPLIANCE AUDIT PROGRAM)

TSCA CONFIDENTIAL BUSINESS INFORMATION

ORIGINAL - DCO (Jeff/Eric)
COPY # 1 - CBIC
COPY # 2 - Scott Sherlock

COMPANY SANITIZED

ORIGINAL - PINS
COPY # 1 - PINS
COPY # 2 - ECAD

CONTAINS NO CBI

ORIGINAL - PINS
COPY # 1 - PINS
COPY # 2 - ECAD (Dave Williams)

P.827 215547

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MILES 

8EHQ-0892-5968 init

August 3, 1992

Miles Inc.
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Phone: 412 777-2000

Document Processing Center (TS-790)
Office of Toxic Substances
Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: Section 8(e) Coordinator
(CAP Agreement)



88920004614

92 AUG -3 PM 2:18

RE: 8E-CAP-0065

Dear Sir:

Miles Inc. is submitting a study under the TSCA Section 8(e) Compliance Audit Program (CAP Agreement 8E-CAP-0065).

The tested mixtures in the attached document are TDI, HDI, IPDI, MCDI, Polymeric HDI and Polymeric MDI and can be represented by the following CAS Registry Numbers: 26471-62-5, 822-06-0, 4098-71-9, 5124-30-1, mixtures with 28182-81-2 and 9016-87-9, respectively.

The title of the accompanying document is Acute Inhalation Toxicity of Diisocyanates, Polymer Isocyanates and Coating Systems on Rats by G. Kimmerle dated June 1976.

The results in this study that may be considered reportable according to the TSCA 8(e) Reporting Guide include acute inhalation toxicity data in the highly or extremely toxic range.

This compound has not been the subject of a previous TSCA Section 8(e) submission or premanufacture notification.

The information submitted in this report is not considered Confidential Business Information.

If you have any questions on this submission, please contact me.

Sincerely,



Donald W. Lamb, Ph.D
Vice President
Product Safety and Regulatory Affairs
412-777-7431

549/9.LTR/vmk
Attachments
Certified Mail P 827 215 547

7-31-92

CONTAINS NO CBB

BAYER AG
INSTITUTE FOR TOXICOLOGY
Report No. 6200

Wuppertal-Elberfeld, June 1976

Copy No. 2

ACUTE INHALATION TOXICITY OF DIISOCYANATES,
POLYMER ISOCYANATES AND COATING SYSTEMS ON RATS

by
Dr. G. Kimmerle

This report or excerpts of it are not to be copied. If required,
additional copies can be provided by the authors.

INTRODUCTION

The acute inhalation toxicity of the aerosols of diisocyanates (TDI, HDI, IPDI, MCDI) and its polymer products is to be tested on rats in comparison to other coating systems.

The results of these experiments are compiled in this report.

MATERIAL AND METHODS

Test Samples

I. Monomer Diisocyanates

- a) Toluylenediisocyanate (TDI): T 65 (100%) with about 48% NCO content,
diluted to 40% with xylene/ethylglycolacetate (EGA) 1:1
- b) Hexamethylenediisocyanate (HDI)
diluted to 40% with xylene/EGA 1:1
- c) Isophorondiisocyanate (IPDI) 100% with about 38% NCO content, diluted to 40% with xylene/EGA (1:1)
- d) 3,3'-dimethyl-4,4'-diisocyanatodicyclohexylmethane (MCDI) 100%, diluted to 40% with xylene/EGA (1:1)

II. TDI-polymers

- a) Desmodur L 67: supplied as 67% in xylene/EGA (1:1)
diluted to 40% in xylene/EGA (1:1)
- b) Desmodur L 67 (67% in xylene/EGA 1:1)
with Desmophen 800 (100%) at a ratio of
190 pbw Desmodur L 67 (as supplied)
+ 100 pbw Desmophen 800
+ 280 pbw xylene/EGA (1:1)
= 40% solution
- c) Desmodur L 67 (67% in xylene/EGA 1:1)
with VP-L 2292 (60% OH-acrylat)

100 pbw VP-L 2292
+ 54 pbw Desmodur L 67
further diluted with xylene/EGA (1:1) to 20% solid
particles

- d) Desmodur IL (51% in butylacetate)
diluted to 20 and 30% in butylacetate
- e) Desmodur HL (60% in butylacetate)
diluted to 40% in butylacetate

III. HDI-Polymers

- a) Desmodur VP-HTMP: 70% in xylene/EGA (1:1) with about
11.4% NCO content,
diluted to 40% with xylene/EGA (1:1)
- b) Desmodur N 75: 75% in xylene/EGA (1:1)
diluted to 40% with xylene/EGA (1:1)
- c) EIJ 1660 (pt. 3) = Desmodur VP KL-5-2333 (100%) with
22.7% NCO content
diluted to 40% with xylene/EGA (1:1)
- d) Desmodur N 75 = 78 pbw
+ Desmophen 650 100 pbw (65% in EGA)
diluted to 40% with xylene/EGA (1:1)
- f) Desmodur VP-KL-5-2335 (83% in xylene/EGA 1:1)
diluted to 40% with xylene/EGA (1:1)
- g) Desmodur VP-KL-5-2335
(83% in xylene/EGA 1:1) = 135 pbw
+ Desmophen VP-KL-5-2331
(90% in butylacetate/xylene 1:1) = 100 pbw
+ xylene/EGA (1:1) = 65% solution = 73 pbw
- h) Desmodur HL (60% in butylacetate)
diluted to 40% in butylacetate
- i) Desmodur E 3260 (60% in xylene/EGA 2.5:1)
diluted to 40% in xylene/EGA 1:1

a) Alkydal R 35 (about 60% in xylene)
diluted to 20% with xylene/EGA (1:1)

b) Acrylic coating: Setalux C 1121 BX 45% 1090 parts
Setamin C 33 BX 60% 350 parts

Solid matter content: 48.6%

Acrylate:melamine ratio = 70:30

diluted with xylene to 20%

- c) Duracryl Clear - DCA 468
about 35% solid matter
diluted with Extra High Gloss Acrylic Thinner DTL-105 to 12.5
- d) Acrylic lacquer Clear L 67-type 5 x 149815-A
about 38% solid matter
diluted to 15% with xylene/EGA (1:1)
- e) Epikote 1001/Epikure V 670 (with special solvents)
diluted to 40% with xylene/EGA 1:1
- f) NAD clear automotive Type 11 (60% in special mixture)
diluted to 20 and 20% with xylene/EGA 1:1
- g) Acrylic enamel clear E 14 Type 5 x 149815-B (28% in water)
diluted to 20% with water.

Test Animals

Male and female albino rats, strain Wistar II (body weight 170-190 g) by breeder Winkelmann, Borcheln.

Test Method

The listed products or mixtures we produced according to instructions, were prepared in most cases as a 40% solution of the solid matter in xylene and ethylglycolacetate (1:1). In some cases only lower concentrations of the solid matter in this solvent mixture could be sprayed (clogging of the spray nozzle). Some products had to be diluted with other solvents. These solutions received the addition of 0.05% oil red and were sprayed with a pressure air flow of 10 l/min via a nozzle (VD) in a 10-liter three-necked flask (K). The aerosol concentration in this flask was adjusted by an infusion pump to 50 μ l solution/liter air. The aerosol was then guided through a glass tube from the flask into a dynamic inhalation apparatus (InR; KIMMERLE and EBEN, Arch.

Toxicol., 30, 115, 1973). The aerosol concentrations in the inhalation apparatus were varied by adding air (L2, R2) and by reducing the primary aerosol (F1, R1) (see Fig.).

The aerosol was absorbed by the rats (10 male and 10 female rats per test) in this equipment only together with the breathing air.

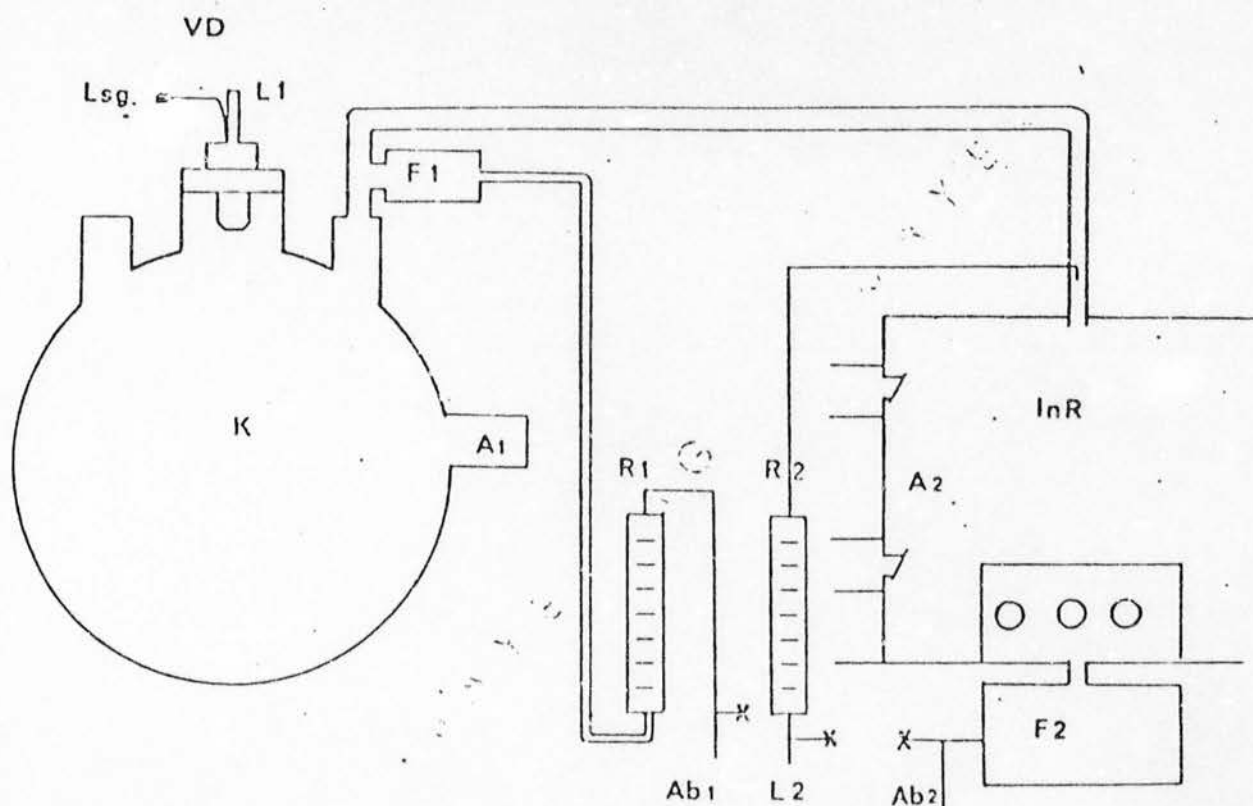
During the 4-hour long exposures the concentrations of the products (referring to their solid matter content) were analytically determined via the indirect oil-red method (DILLEY and DULL, Chemagro-Report 7078 of July 15, 1961). The spray mist was adsorbed on cotton from the inhalation air (A2) in this test. From this cotton the dyestuff oil-red could be quantitatively dissolved with xylene and photometrically determined at 525 nm and 1 cm layer thickness. The percentage of oil-red per liter air is then according to the percentage of solid matter of the product contained therein. The aerosol concentrations were determined up to four times during the 4-hour long experiment.

The animals were observed for four weeks after the exposures and then dissected. Even the dead rats were dissected.

The figures under the column "Toxicol. Result" in the Tables mean:

1. Number = No. of dead animals
2. Number = No. of animals having intoxication symptoms
3. Number = No. of exposed animals

The average lethal concentration (LC_{50}) were statistically determined (LITCHFIELD and WILCOXON, J. Pharmacol. exper. Therap. 96, 99, 1949).

2-Stage Aerosol Equipment

- VD = spray nozzle
 Lsg = solution in front of the infusion pump
 L1 = pressure air (10 l/min)
 L2 = additional air, variable
 K = 10-liter three-necked flask
 A1 = analysis opening for primary aerosol
 A2 = analysis opening for secondary aerosol
 F1 = cotton filter for partial aerosol
 F2 = cotton filter for waste air
 R1 = meter for gases for partial aerosol
 R2 = meter for gases for fresh air
 Ab1 = waste air (vacuum)
 Ab2 = waste air (vacuum)
 InR = inhalation chamber (20 liter)

RESULTSI. Monomer Diisocyanatesa) TDI

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
66	0/10/10	0/10/10
70	0/10/10	0/10/10
174	2/10/10	0/10/10
207	4/10/10	0/10/10
332	3/10/10	7/10/10
634	7/10/10	9/10/10
703	8/10/10	10/10/10
917	9/10/10	10/10/10

LC₅₀ male rats: 350 (255-479) mg/m³ air
female rats: 360 (259-439) mg/m³ air

Intoxication symptoms: labored breathing
Occurrence of death: 1 - 24 days
Dissection finding: lung edema, pneumonia

b) HDI

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
105	0/10/10	0/10/10
143	0/10/10	0/10/10
259	4/10/10	1/10/10
341	9/10/10	5/10/10
383	7/10/10	6/10/10
443	8/10/10	8/10/10
575	8/10/10	9/10/10
589	9/10/10	9/10/10
719	10/10/10	10/10/10

LC₅₀ male rats: 310 (256-375) mg/m³ air
female rats: 350 (299-363) mg/m³ air

Intoxication symptoms: labored breathing
Occurrence of death: 1 - 20 days
Dissection finding: lung edema, pneumonia

c) IPDI

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
62	0/10/10	0/10/10
72	2/10/10	1/10/10
131	4/10/10	5/10/10
200	5/10/10	6/10/10
211	6/10/10	10/10/10
285	10/10/10	10/10/10

LC₅₀ male rats: 160 (120-215) mg/m³ air
female rats: 135 (98-185) mg/m³ air

Intoxication symptoms: labored breathing
Occurrence of death: 1 - 14 days
Dissection finding: lung edema, pneumonia

d) MCDI

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
248	0/10/10	0/10/10
335	0/10/10	1/10/10
385	3/10/10	5/10/10
748	8/10/10	6/10/10
1001	9/10/10	9/10/10
1611	10/10/10	10/10/10

LC₅₀ male rats: 554 mg/m³ air
female rats: 542 mg/m³ air

Intoxication symptoms: labored breathing
Occurrence of death: 1 - 5 days
Dissection finding: lung edema, pneumonia

II. TDI-Polymersa) Desmodur L 67

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1299	0/10/10	0/10/10
3034	0/10/10	2/10/10
3820	2/10/10	1/10/10

LC₅₀ male rats: 3820 mg/m³ air
female rats: 3820 mg/m³ air

Intoxication symptoms: Decrease of general well-being

Occurrence of death: 1 - 7 days

Dissection finding: inconspicuous

b) Desmodur L 67 + Desmophen 800

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1646	0/10/10	0/10/10
2266	0/10/10	2/10/10
3752	3/10/10	1/10/10

LC₅₀ male rats: 3752 mg/m³ air
female rats: 3752 mg/m³ air

Intoxication symptoms: temporary labored breathing

Occurrence of death: 1 - 7 days

Dissection finding: low-degree of lung edema, later no finding

c) VP-L 2292 + Desmodur L 67

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1747	0/10/10	0/10/10
2195	2/10/10	3/10/10

LC₅₀ male rats: 2195 mg/m³ air
female rats: 2195 mg/m³ air

Intoxication symptoms: temporary labored breathing
Occurrence of death: 1 - 14 days
Dissection finding: low-degree of lung edema, later no finding

d) Desmodur IL

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1136	0/10/10	0/10/10
1537	0/10/10	0/10/10
2462	0/10/10	0/10/10

LC₅₀ male rats: 2462 mg/m³ air
female rats: 2462 mg/m³ air

Intoxication symptoms: decrease of general well-being
Occurrence of death: -
Dissection finding: low-degree pneumonic changes

e) Desmodur HL

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1526	0/10/10	0/10/10
3003	0/10/10	0/10/10

LC₅₀ male rats: 3003 mg/m³ air
female rats: 3003 mg/m³ air

Intoxication symptoms: decrease of general well-being

Occurrence of death: -

Dissection finding: low-degree pneumonic changes

III. HDI-Polymersa) Desmodur VP-HTMP

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
126	0/10/10	0/10/10
165	0/10/10	0/10/10
366	1/10/10	0/10/10
469	6/10/10	4/10/10
711	8/10/10	8/10/10
1742	10/10/10	10/10/10

LC₅₀ male rats: 500 (349-715) mg/m³ air
female rats: 500 (373-670) mg/m³ air

Intoxication symptoms: labored breathing

Occurrence of death: 24 hours

Dissection finding: lung edema

b) Desmodur N 75

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
230	0/10/10	0/10/10
259	0/10/10	1/10/10
351	6/10/10	6/10/10
408	7/10/10	9/10/10
791	10/10/10	10/10/10

LC₅₀ male rats: about 425 mg/m³ air
 female rats: about 400 mg/m³ air

Intoxication symptoms: labored breathing
 Occurrence of death: 1 - 7 days
 Dissection finding: lung edema, pneumonia

c) EIJ 1660

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
154	0/10/10	0/10/10
172	0/10/10	0/10/10
265	6/10/10	3/10/10
465	10/10/10	8/10/10
568	9/10/10	9/10/10
750	10/10/10	10/10/10

LC₅₀ male rats: 310 (246-390) mg/m³ air
 female rats: 335 (262-429) mg/m³ air

Intoxication symptoms: labored breathing
 Occurrence of death: 1 - 7 days
 Dissection finding: not dissected

d) Desmodur N 75 + Desmopha. 650

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
302	0/10/10	0/10/10
541	0/10/10	1/10/10
607	3/10/10	2/10/10
1081	10/10/10	9/10/10
2068	10/10/10	10/10/10

LC₅₀ male rats: about 760 mg/m³ air
 female rats: about 800 mg/m³ air

Intoxication symptoms: temporary labored breathing
 Occurrence of death: 24 hours
 Dissection finding: no special finding

e) Desmodur N 75 - VP 1 2292

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
370	0/10/10	0/10/10
614	1/10/10	0/10/10
744	0/10/10	0/10/10
1249	5/10/10	4/10/10
1800	8/10/10	6/10/10
2064	10/10/10	10/10/10

LC₅₀ male rats: 1250 (1106-1412) mg/m³ air
 female rats: 1250 (1106-1412) mg/m³ air

Intoxication symptoms: labored breathing
 Occurrence of death: 1 - 7 days
 Dissection finding: not dissected

f) Desmodur VP-KL-5-2335

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
129	0/10/10	0/10/10
156	0/10/10	0/10/10
184	0/10/10	0/10/10
403	0/10/10	4/10/10
629	3/10/10	5/10/10
684	7/10/10	9/10/10
1010	10/10/10	8/10/10
1947	10/10/10	10/10/10

LC₅₀ male rats: 620 (544-707) mg/m³ air
 female rats: 550 (410-737) mg/m³ air

Intoxication symptoms: labored breathing

Occurrence of death: 1 - 7 days

Dissection finding: lung edema

g) Desmodur VP-KL-5-2335 + Desmophen VP-KL-5-2331

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
498	0/10/10	0/10/10
913	0/10/10	1/10/10
1322	5/10/10	3/10/10
2172	8/10/10	3/10/10

LC₅₀ male rats: about 1550 mg/m³ air
 female rats: about 2000 mg/m³ air

Intoxication symptoms: labored breathing

Occurrence of death: 24 hours

Dissection finding: not dissected

h) Desmodur HL

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1526	0/10/10	0/10/10
3003	0/10/10	0/10/10

LC₅₀ male rats: 3003 mg/m³ air
 female rats: 3003 mg/m³ air

Intoxication symptoms: decreased general well-being
 Occurrence of death: -
 Dissection finding: slight pneumonic changes

i) Desmodur E 3260

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
177	0/10/10	0/10/10
237	0/10/10	0/10/10
689	3/10/10	2/10/10
1140	7/10/10	6/10/10
1759	8/10/10	5/10/10

LC₅₀ male rats: 943 mg/m³ air
 female rats: about 1150 mg/m³ air

Intoxication symptoms: labored breathing
 Occurrence of death: 1 - 4 days
 Dissection finding: lung edema, pneumonia

j) Desmodur EIJ 1676 E

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
115	0/10/10	0/10/10
148	0/10/10	0/10/10
202	0/10/10	2/10/10
258	2/10/10	6/10/10
363	4/10/10	8/10/10
485	8/10/10	9/10/10
669	10/10/10	10/10/10

LC₅₀ male rats: 369 mg/m³ air
female rats: 268 mg/m³ air

Intoxication symptoms: extremely labored breathing
Occurrence of death: in 24 hours
Dissection finding: lung edema, pneumonia

k) Basonat 8423

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
511	0/10/10	0/10/10
688	3/10/10	2/10/10
725	4/10/10	3/10/10
764	4/10/10	2/10/10
1014	9/10/10	10/10/10
1216	10/10/10	10/10/10

LC₅₀ male rats: 778 mg/m³ air
female rats: 794 mg/m³ air

Intoxication symptoms: extremely labored breathing

Occurrence of death: 1 to 4 days

Dissection finding: lung edema, pneumonia

IV. IPDI-Polymersa) Desmodur VP-L 2267

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
3313	0/10/10	0/10/10
4911	0/10/10	0/10/10
5362	1/10/10	0/10/10

LC₅₀ male rats: 5362 mg/m³ air
female rats: 5362 mg/m³ air

Intoxication symptoms: short-term labored breathing
Occurrence of death: 24 hours
Dissection finding: no finding

V. MDI-Polymersa) Desmodur VL*Mondur MRS*

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
113	0/10/10	0/10/10
234	1/10/10	1/10/10
324	2/10/10	2/10/10
400	6/10/10	6/10/10
486	9/10/10	8/10/10
937	10/10/10	10/10/10
<hr/>		
LC ₅₀ male rats:	369 mg/m ³	air
female rats:	380 mg/m ³	air

Intoxication symptoms: labored breathing

Occurrence of death: 1 to 3 days

Dissection finding: lung edema

VI. Polyolsa) Desmophen RD 181

Concentration mg solid matter/m ³ air		Toxicological Result - Rats	
		male	female
1538		0/10/10	0/10/10
2472		0/10/10	0/10/10
LC ₅₀ male rats: 2472 mg/m ³ air			
female rats: 2472 mg/m ³ air			

Intoxication symptoms: Decreased general well-being

Occurrence of death: -

Dissection finding: slight pneumonic changes

b) Desmophen VP-KL-5-2292

Concentration mg solid matter/m ³ air		Toxicological Result - Rats	
		male	female
1277		0/10/10	0/10/10
2002		0/10/10	0/10/10
LC ₅₀ male rats: 2002 mg/m ³ air			
female rats: 2002 mg/m ³ air			

Intoxication symptoms: Decreased general well-being

Occurrence of death: -

Dissection finding: No finding

c) Desmophen 650

Concentration mg solid matter/m ³ air		Toxicological Result - Rats	
		male	female
1117		0/10/10	0/10/10
1919		0/10/10	0/10/10
LC ₅₀ male rats:		1919 mg/m ³ air	
female rats:		1919 mg/m ³ air	

Intoxication symptoms: Decreased general well-being

Occurrence of death: -

Dissection finding: No finding

VII. Comparison Productsa) Alkydal R 35

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1347	0/10/10	0/10/10
2230	0/10/10	0/10/10
2520	0/10/10	0/10/10
3625	0/10/10	0/10/10

LC₅₀ male rats: 3625 mg/m³ air
 female rats: 3625 mg/m³ air

Intoxication symptoms: short-term labored breathing

Occurrence of death: -

Dissection finding: was not dissected

b) Acrylic Coating Setalux-Setamin

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1135	0/10/10	0/10/10
1222	0/10/10	0/10/10
1514	0/10/10	0/10/10
1804	4/10/10	0/10/10
2029	6/10/10	1/10/10
2382	9/10/10	4/10/10
3476	10/10/10	9/10/10

LC₅₀ male rats: 1944 (1796-2109) mg/m³ air
 female rats: 2610 (2351-3061) mg/m³ air

Intoxication symptoms: short-term labored breathing, dizzy

Occurrence of death: 24 hours

Dissection finding: was not dissected

c) Duracryl Clear-DCA 468

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
805	0/10/10	0/10/10
1233	4/10/10	2/10/10

LC₅₀ male rats: 1233 mg/m³ air
female rats: 1233 mg/m³ air

Intoxication symptoms: short-term labored breathing
Occurrence of death: 24 hours
Dissection finding: was not dissected

d) Acrylic Lacquer Clear L 67 Type

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
536	0/10/10	0/10/10
1166	0/10/10	0/10/10
1357	0/10/10	0/10/10

LC₅₀ male rats: 1357 mg/m³ air
female rats: 1357 mg/m³ air

Intoxication symptoms: short-term labored breathing, dizzy
Occurrence of death: -
Dissection finding: no finding

e) Epikote 1001/Epikure V 670

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
2042	0/10/10	0/10/10
3375	0/10/10	0/10/10

LC₅₀ male rats: 3375 mg/m³ air
female rats: 3375 mg/m³ air

Intoxication symptoms: short-term labored breathing

Occurrence of death:

Dissection finding: no finding

f) NAD Clear Automotive

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
269	0/10/10	0/10/10
505	0/10/10	0/10/10
1009	0/10/10	0/10/10

LC₅₀ male rats: 1009 mg/m³ air
female rats: 1009 mg/m³ air

Intoxication symptoms: short-term labored breathing

Occurrence of death:

Dissection finding: no finding

g) Acrylic Enamel Clear E

Concentration mg solid matter/m ³ air	Toxicological Result - Rats	
	male	female
1330	0/10/10	0/10/10
1694	0/10/10	0/10/10

LC₅₀ male rats: 1694 mg/m³ air
female rats: 1694 mg/m³ air

Intoxication symptoms: decrease of the general well-being

Occurrence of death:

Dissection finding: no finding

VIII. Solvent Sylene + Ethyleneglycolacetate (1:1)g) Acrylic Enamel Clear E

Concentration mg/air	Toxicological Result - Rats	
	male	female
6690	0/10/10	0/10/10
8860	0/10/10	0/10/10

LC₅₀ male rats: 8860 mg/m³ air
female rats: 8860 mg/m³ air

Intoxication symptoms: short-term sedative effect
Occurrence of death: -
Dissection finding: no finding

SUMMARY OF TEST RESULTS

		LC ₅₀ mg solid matter per m ³ air	
		Male Rats	Female Rats
I.	<u>Monomere Diisocyanate</u>		
	TDI	350	360
	HDI	310	350
	IPDI	160	135
	MCDI	554	542
II.	<u>TDI-Polymere</u>		
	Desmodur L 67	>3820	>3820
	Desmodur L 67 + Desmophen 800	>3752	>3752
	VP-L 2292 + Desmodur L 67	>2195	>2195
	Desmodur IL	>2462	>2462
	Desmodur HL	>3003	>3003
III.	<u>HDI-Polymere</u>		
	Desmodur VP-HTMP	500	500
	Desmodur N 75	425	400
	EIJ 1660	310	335
	Desmodur N 75 + Desmophen 650	760	800
	Desmodur N 75 + VP L 2292	1250	1250
	Desmodur VP-KL-5-2335	620	550
	Desmodur VP-KL-5-2335 + Desmodur VP-KL-5-2331	1550	2000
	Desmodur HL (Mondur HC)	>3003	>3003 Mondur HC
	Desmodur E 3260	943	ca. 1150
	Desmodur EIJ 1676 E	369	268
	Basonat 8423	778	794
IV.	<u>IPDI-Polymere</u>		
	Desmodur VP-L-2267	>5362	>5362
V.	<u>MDI-Polymere</u>		
	Desmodur VL	369	380

Consistently
lower than for
TDI-Polymers
except for HL

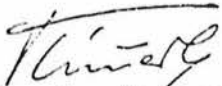
→ also low but of course free monomer
content is about 50% here.


VI. Polyole

Desmophen RD 181	> 2472	> 2472
Desmophen VP-KL-5-2292	> 2002	> 2002
Desmophen 650	> 1919	> 1919

VII. Vergleichsprodukte

Alkydal R 35	> 3625	> 3625
Acrylatlack Setalux-Setamin	1944	2610
Duracryl Clear-DCA 468	> 1233	> 1233
Acrylic Lacquer Clear L 67 Type	> 1357	> 1357
Epikote/Epikur	> 3375	> 3375
NAD clear automotive	> 1009	> 1009
Acrylic enamel clear	> 1694	> 1694


(Dr. G. Kimmmerle)


(Dr. D. Lorke)

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(City) (State)

